



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/655,923 | 09/05/2003 | Edwin T. Horton JR. | 7784-000561 | 8630 |

27572 7590 08/04/2005

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

LAM, DUNG LE

ART UNIT PAPER NUMBER

2687

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-------------------------------|--|
| Office Action Summary | Application No. 10/655,923 | Applicant(s) HORTON ET AL. | |
| | Examiner Dung Lam | Art Unit 2687 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The references listed in the Information Disclosure Statement submitted on April 22, 2004 have been considered by the examiner (see attached PTO-1449 form).

Claim Objections

2. Claim 23 is objected to because of the following informality:
Claim 23, the word "lease" on line 14 should be changed to --least--.
Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7, 9-11, 15-17, 20-23, 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by **Anderson et al.** (EP Patent No. 1081974 A2).
5. Regarding **claim 1**, Anderson teaches a system (Fig. 1) for managing communication between a mobile platform (wireless unit 12) operating within a pre-defined geographic region and a communications station, the system comprising:
a control system for managing communications within said geographic region (MSC, Fig. 1);
an inherent mobile platform communications component located on said mobile

Art Unit: 2687

platform for communicating with said control system; a plurality of antennas (24a-24f) located at spaced apart locations within or adjacent said geographic region, each of said antennas being in communication with said control system; and wherein said control system uses an operating characteristic (speed, direction, position, Col. 4, lines 36-39) of said mobile platform as said mobile platform operates within said geographic region to inform said mobile platform as to which one of said antennas to communicate with to maintain a communications link between said mobile platform and said control system (Col. 4, lines 46-50) while reducing a frequency with which said mobile platform is required to switch between different ones of said antennas as said mobile platform moves within said geographic region.

6. Regarding **claim 2**, *Anderson* teaches all the limitations in claim 1. *Anderson* further teaches said operating characteristic comprises real time position information of said mobile platform (location information, Col. 6, lines 48-58).

7. Regarding **claim 3**, *Anderson* teaches all the limitations in claim 1. *Anderson* further teaches said operating characteristic comprises real time information relating to a direction of travel of said mobile platform (Col. 6, lines 48-58).

8. Regarding **claim 4**, *Anderson* teaches all the limitations in claim 1. *Anderson* further teaches said operating characteristic comprises real time information relating to a speed of travel of said mobile platform (Col. 6, lines 48-58).

9. Regarding **claim 5**, *Anderson* teaches all the limitations in claim 1. *Anderson* further teaches said control system uses information relating to a loading of each of said

Art Unit: 2687

antennas in determining which one of said antennas said mobile platform is to use for communication purposes (Col. 6, lines 19-21 and Col. 10, lines 33-36).

10. Regarding **claim 6**, Anderson teaches a system (Fig. 1) for managing communications with a mobile platform operating within a pre-defined geographic region, comprising: a mobile platform (wireless unit 12) communications component located on said mobile platform for determining a location of said mobile platform while said mobile platform is operating within said pre-defined geographic region; at least one antenna located on said mobile platform (76, Fig. 5); a ground based component including: a plurality of antennas located at spaced apart locations about said pre-defined geographic region; a control system (MSC, Fig. 1) in communication with said antennas (24a-24f, Fig. 1); and wherein said control system analyzes location information received by at least one of said antennas and selects a specific antenna with which said mobile platform communications component is to use for communicating with a network disposed at said pre-defined geographic region, said selection being made based at least in part on real-time location information for said mobile platform (Col. 10, lines 33-36).

11. Regarding **claim 7**, Anderson teaches all the limitations of claim 6. Anderson further teaches said location information is provided to said control system by said mobile platform (Col. 12, lines 26-36).

12. Regarding **claim 9 and 21**, Anderson teaches all the limitations of claims 6 and 17. Anderson further teaches location information is derived from Global Positioning Satellite information and supplied to said control system by said mobile platform communications component (Col. 6, lines 43-45).

13. Regarding **claim 10**, Anderson teaches all the limitations of claim 6. Anderson further teaches said selection is further made in consideration of a speed of travel of said mobile platform (Col. 6, lines 48-58).

14. Regarding **claim 11, 20 and 22** are Anderson teaches all the limitations of claim 6 and 17 respectively (see claims 6 and 17). Anderson further teaches said selection is further made in consideration of a loading of at least a pair of said antennas (Col. 6, lines 19-21 and Col. 10, lines 33-36).

15. Regarding **claim 15 and 22**, Anderson teaches all the limitations of claims 6 and 17. Anderson further teaches that said control system uses information relating to a speed of travel of said mobile platform to make said selection (Col. 6, lines 48-58).

16. Regarding **claim 16**, Anderson teaches all the limitations of claim 6. Anderson further teaches said control system uses information related to a direction of travel of said mobile platform to make said selection (Col. 6, lines 48-58).

17. Regarding **claim 17**, it is a combination of all the limitations of claims 1 and 3. Therefore, it is rejected for the same reasons as address in claims 1 and 3.

18. Regarding **claim 22**, it is a combination of all the limitations of claims 1 3 and 4. Therefore, it is rejected for the same reasons as address in claims 1, 3 and 4.

Art Unit: 2687

19. Regarding **claim 23**, Anderson teaches all the limitations as in claim 17.

Anderson further teaches at least one of said antenna stations is used to inform said mobile platform as to which specific one of said antenna stations to communicate to switch to using (Col. 10, para. 20).

20. Regarding **claims 33 and 34**, they are method claims that correspond to the above respective apparatus claims of 1 and 5. Therefore, they are rejected for the same reasons as claims 1 and 5 respectively (see claims 1 and 5 above).

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Torre et al.** (US 6483454).

23. Regarding **claim 8**, Anderson teaches all the limitations of claim 6. However, Anderson fails to teach that location information is derived by said control system through multi-lateration techniques. In an analogous art, **Torre** teaches that aircraft uses multi-lateration techniques to determine location as an aid to determine the best collision avoidance maneuver. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's

Art Unit: 2687

communication system to utilize multi-lateration technique as a more efficient method in determining the position of the mobile unit (Col. 11, lines 45-49).

24. Claims **12 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Willhoff** (US Patent 5887262).

25. Regarding **claim 12 and 24**, Anderson teaches all the limitations of claims 6 and 24. However, Anderson fails to teach each said antenna comprises an antenna substation comprised of at least one directional antenna and an omni-directional antenna. In an analogous art, **Willhoff** teaches a system that utilizes both omni-directional (non-SAS) and directional (SAS) antennas to make the system more compatible by being able to communicate with both directional and omni-directional enabled mobile units (Col. 6, lines 45-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to utilize both omni-directional and directional antenna to preserve full service capacity as suggested by Willhoff (Col. 6, lines 45-52).

26. Claims **13** rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Thompson** (US Patent 2001/0036843).

27. Regarding **claim 13**, Anderson teaches all the limitations of claim 6. Anderson fails to teach ground based component further includes a hub for facilitating communication between said antennas and said control system. It is known in the field

Art Unit: 2687

of telecommunication that a hub is used to connect other points of the network.

Furthermore, in an analogous art, Thompson teaches the use of a hub as a central point of serving other antennas and remote stations (Col. 1, para. 17). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to employ a hub to enable the communications between the antennas and the control system.

28. Claims **14, 26, 27, 29 and 32** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Ballai** (US Patent 2004/0023640).

29. Regarding **claim 14**, Anderson teaches all the limitations of claim 6. However, Anderson fails to teach each said antenna transmits a unique beacon signal, and wherein said mobile platform communications component initially selects one of said beacon signals having the strongest signal strength to establish a communications link with said ground based component. In an analogous art, Ballai teaches the selection of the strongest beacon signal to connect the communication link (Col. 1, para. 8). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to select the strongest beacon signal as the link of communications to increase the chance of success in setting up a connection.

30. Regarding **claim 26**, it is a method claim corresponding the combined apparatus claims 1, 3, 4 and 14. Therefore it is rejected for the same reasons as claims 1, 3, 4 and 14.

Art Unit: 2687

31. Regarding **claim 27**, it is a method claim corresponding the combined apparatus claims 1, 3, 4 and 9. Therefore it is rejected for the same reasons as claims 1, 3 and 9.

32. Regarding **claim 29**, it is a method claim corresponding the combined apparatus claims 1, 3, 4 and 14. Therefore it is rejected for the same reasons as claims 1, 3, 4 and 14.

33. Claims **30, 31 and 32** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Ballai** (US Patent 2004/0023640) in further view of **Willhoff** (US Patent 5887262).

34. Regarding **claim 30**, Anderson and Ballai teaches all the limitations as in claim 26. However they fail to teach said antenna stations comprises using antenna stations that each comprises a directional antenna aimed in different directions. In analogous art, Willhoff teaches the use of directional antenna to reduce interference (Col. 6, lines 45-48). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Anderson and Ballai's teachings with employ directional antenna as taught by Willhoff to reduce interference.

35. Regarding **claim 31**, Anderson and Ballai teaches all the limitations as in claim 26. However they fail to teach said antenna stations further comprises using at least one directional antenna and one omni directional antenna. In an analogous art, **Willhoff** teaches a system that utilizes both omni-directional (non-SAS) and directional (SAS) antennas to make the system more compatible by being able to communicate with both

Art Unit: 2687

directional and omni-directional enabled mobile units (Col. 6, lines 45-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to utilize both omni-directional and directional antenna to preserve full service capacity as suggested by Willholf (Col. 6, lines 45-52).

36. Regarding **claim 32**, it is a method claim corresponding the combined apparatus claims 1, 3, 4, 14 and 5. Therefore it is rejected for the same reasons as claims 1, 3, 4, 14 and 5.

37. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Ballai** (US Patent 2004/0023640) in further view of **Torre et al.** (US 6483454).

38. Regarding **claim 28**, it is a method claim corresponding the combined apparatus claims 1, 3, 4, 14 and 8. Therefore it is rejected for the same reasons as claims 1, 3, 4, 14 and 8.

39. Claims **18-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Hajimiri et al.** (US Patent 6917815).

40. Regarding **claim 18**, Anderson teaches all the limitations of claim 17. However, Anderson fails to teach said mobile platform includes first and second RF antennas each operating at a different frequency. In an analogous art, Hajimiri teaches the method of

Art Unit: 2687

two different frequencies simultaneously for redundancy purpose and thereby increases the reliability in transmissions (Col. 2, lines 30-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to use two different frequencies as a redundancy technique which increases reliability in signal transmission quality.

41. Regarding **claim 19**, Anderson teaches all the limitations of claim 17. However, Anderson fails to teach each said antenna station includes first and second antennas operating at different frequencies. In an analogous art, Hajimiri teaches the method of using two different frequencies simultaneously for redundancy purpose and for an increase of reliability in transmissions (Col. 2, lines 30-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to use two different frequencies as a redundancy technique which increases reliability in signal transmissions.

Citation of Prior Art

42. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Parkman et al. (US Publication No. 2004/0092263) discloses a system and method of carrying out hand-off for a mobile platform.

Gabara (US Publication No. 2004/0203779) teaches a method of routing a mobile unit based on directions, speed and load balancing using directional antenna.


7/25/05
LESTER G. KINCAID
SUPERVISORY PRIMARY EXAMINER

Art Unit: 2687

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Lam whose telephone number is (571) 272-6497. The examiner can normally be reached on M - F 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DL

7/25/2005